**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
REGION 1
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BOSTON, MASSACHUSETTS 02114-2023

October 30, 2007

James Colter, P.E.
Remedial Project Manager (Code OPNEEV)
Facilities Engineering Comment, Mid-Atlantic
Naval Facilities Engineering Command
9742 Maryland Avenue
Norfolk, VA 23511-3095

Re: *Stone Revetment Replacement Design (30% Submission) for the Old Fire Fighting Training Area, Naval Station Newport, Newport, Rhode Island, Revision 1*

Dear Mr. Colter:

I am writing to provide your office with EPA's comments on the document entitled *Stone Revetment Replacement Design (30% Submission) for the Old Fire Fighting Training Area, Naval Station Newport, Newport, Rhode Island, Revision 1* dated September 2007. Our comments can be found in an attachment to this letter. Please do not hesitate to contact me at (617) 918-1392 should you have any questions.

Sincerely,

Bob Lim, Remedial Project Manager
Federal Facilities Superfund Section

cc. Kymberlee Keckler, EPA
Paula Loht, Gannett Fleming
Paul Kulpa, RIDEM, Providence, RI
Cornelia Mueller, NETC, Newport, RI
Steven Parker, Tetra-Tech-NUC, Wilmington, MA

## ATTACHMENT

The following are EPA's comments on the document entitled *Stone Revetment Replacement Design (30% Submission) for the Old Fire Fighting Training Area, Naval Station Newport, Newport, Rhode Island, Revision 1*, dated September 2007. Technical support is provided to EPA by support contractor Gannett Fleming Inc.

### SPECIFIC COMMENTS

p. 3-3, §3.2.1: The text in the partial paragraph at the top of the page states that the limits of the eelgrass will be determined at the time of excavation. EPA recommends that the limits of the eelgrass beds be confirmed with better accuracy prior to completion of the final design. Because the accuracy of the prior survey was plus or minus 15 feet, the Navy may find that the remedial work cannot be completed as designed if the eelgrass beds are 15 feet or more closer to shore than expected. Furthermore, the prior eelgrass survey is more than six years old.

p. 3-7, §3.2.6: The text in the first sentence states that the portable dam (or equal) will be placed within the limits of the excavation; however, it appears that it will have to be placed around the perimeter of the excavation, allowing sufficient distance from the excavation edge to avoid collapsing the excavation. Also, placement within the limits of excavation is not consistent with Figure 3-1, which shows the portable dam outside the limits of excavation. Please edit the text as appropriate for the subsequent submittal.

p. 3-9, §3.3: Please also describe what pre-construction surveying will be performed specific to the construction of the revetment. This will be required to re-establish the pre-existing coastal beach. It is not apparent that the 2005 survey by Louis Federici and Associates provided the necessary information.

Table 2-2: Please correct the typo in the table title by changing "STROM WATER" to "STORM WATER".

Attachment A: Drawing T-2:
Please edit Note #8 to require the contractor to "... stake *and survey*...." all areas to be excavated.

Attachment A: Drawing C-1:

a) Please edit Note #2 to clarify that the waterward limit of coastal beach is defined by NOAA's mean low water elevation (which differs from the Naval Station mean low water elevation.)
b) It is noted that the distance from the waterward limit of excavation and the eelgrass beds is as little as 40 feet halfway between section A-A' and B-B', which would put the portable dam membrane at the edge of the eelgrass beds at that point. Note also that the boundary of the eelgrass

beds was previously surveyed with an accuracy of plus or minus 15 feet, which could mean that there is not nearly enough distance available to execute the remediation as planned. Confirmation of the boundaries of the eelgrass beds with a high degree of accuracy will be required prior to the initiation of any remedial activities.

Attachment A: Drawing C-3:

a) Sections A-A' and B-B' show design waterward excavation side slopes of 1:1. It is not clear that 1:1 side slopes will be stable in this environment. If not it is presumed that the planned 10-foot distance between the portable dam and the waterward edge of the excavation would be reduced to accommodate the stable slope requirements and that the dam would not be moved closer to the eelgrass beds. It is expected that an evaluation of slope stability will be made as part of future design submittals. This might require collection of some field data prior to completion of the final design.
b) In addition to the existing reference to Drawing T-2, please supplement this figure with a graphical datum conversion legend that includes at a minimum NGVD 1929, NOAA mean low water, and the project datum (Naval Station mean low water). Without that the sections may be confusing because of the use of Naval Station MLW (ordinate axis) and a different undesignated mean low water elevation. (Drawing T-2 does not address that.)
c) Regarding "Section B – B'" please note that the post-excavation limit of coastal beach is not correct as shown in this figure. Please correct.

Attachment C: Shore Stabilization Calculation:

On page 2 of 17, in Steps 1&2, reference is made to a 13 foot 100-year flood elevation which is said to be 3 feet higher than the surveyed top of slope. Please note that these elevations are not based on the same datum. The referenced flood elevation is NGVD 1929 and the surveyed slope is based on Naval Station mean low water. Please correct the elevations here and throughout the design to correctly reference the elevation datum or use the project datum elevations.

On page 4 of 17 the nominal diameter of the $W_{50}$ rip rap is calculated and the thickness of the rip rap layer is determined. However, the gradation guidelines in EM 1110-2-1614, paragraph 2-17, which the subject document says will be used for design, dictate a greater rip rap thickness than calculated in Appendix C. Note that the guidelines indicate that the formula used in Step 4 of Appendix C should be a calculation of $W_{50min}$. The guidelines also require that $W_{100min}$ be at least as large as twice $W_{50min}$. Finally the guidelines require that the rip rap thickness be at least 25% greater than the nominal diameter of the largest stone. If $W_{100min}$ were the largest stone, the minimum rip rap thickness would be at least 2.25 times $W_{50min}$, or 3.78 feet minimum on the

west side and 1.6 on the east side. The required rip rap thickness cannot be smaller than these values and is expected to be greater than these values. Therefore, the minimum rip rap thickness will be dependent on the size of $W_{100}$, as determined by the rip rap gradation specification. Finally, the choice of placement method will also impact the design size of the rip rap stones. Larger stones are recommended if a dump and spread placement method is used as compared to a hand placement method because of the potential for segregation and breakage of the rip rap if not hand placed (see EM 1110-2-1601). (It is noted that the design text states that stones will be placed with a maximum specified drop distance.) Please edit the next revision of the rip rap design to address this comment.

On page 6 of 17 in the last paragraph on the page, the text states that the referenced text indicates that the average stone weight would be a more conservative stone size (apparently as compared to the minimum stone weight). It is not apparent that the referenced text states that. Actually, the minimum stone weight would be more conservative. Please correct or clarify the intent.

On page 7 of 17 in the last paragraph of Step 10, the text states that toe protection configuration III from Reference 1 will be used. Configuration III requires that the length of the toe be twice the height of the toe (as acknowledged in the previous paragraph of Step 10). However, it does not appear from review of the cross-sections in Appendix A Sheet C-3 that the required configuration has been achieved. The length of the toe would apparently need to be increased to satisfy the requirements of configuration III. Please review and correct the cross-sections.

On page 8 of 17 under Retention Criteria, an incorrect reference (ref. 5) is cited twice in the first sentence. Please correct to cite the appropriate reference.

In the next revetment design submittal, please provide the following supporting information:

a) Slope stability calculations considering the use of geotextile for the range of revetment configurations selected and the updated revetment design.
b) Bearing capacity calculations for the soil supporting the revetment.
c) Settlement calculations for the revetment.
d) Supporting geotechnical data for the calculations.